

A new species of damselfish (Pomacentridae: *Stegastes*) from Ascension Island, Atlantic Ocean

Gerald R. Allen* and Kevin N. Smith*

Abstract

Stegastes lubbocki is described from 40 specimens collected at Ascension Island in the Middle Atlantic Ocean during 1977. It is primarily separable from the other 13 Atlantic members of the genus on the basis of its distinctive colour pattern consisting of dark brown (blue in life) on most of the body and fins with an abruptly pale (yellow in life) caudal peduncle and caudal fin. The largest known specimen is a mature female 50 mm SL, thus it is possibly the smallest *Stegastes*; other species range from 70 to 140 mm SL.

Introduction

The pomacentrid genus *Stegastes* Jenyns occurs worldwide in tropical and subtropical seas. The species of this genus are bottom-dwelling, territorial damselfishes, generally not exceeding a total length of 14 cm. They inhabit coral or rocky reefs, from tidepool depths to at least 45 m, although most occur in less than 10 m. They are omnivorous, but the diet consists largely of various algae.

The genus contains 33 species including 13 each from the Indo-West Pacific and Atlantic regions, and seven species from the Eastern Pacific. These fishes were included by most previous authors in either *Pomacentrus* Lacepède or *Eupomacentrus* Bleeker, but Emery and Allen (1980) presented evidence for their separate generic status and resurrected *Stegastes* as the oldest available name.

The present paper describes a new species of *Stegastes* collected in 1977 by the late Roger Lubbock at tiny Ascension Island in the middle Atlantic. Two other island endemics (*S. sanctaehelenae* and *S. sanctipauli*) occur in the mid-Atlantic at St Helena Island and St Paul's Rocks, and a third, *S. rocasensis*, is endemic to Atol das Rocas, off northern Brazil.

Methods of counting and measuring follow those of Allen (1972) and Randall and Allen (1977). The counts and proportions which appear in parentheses are those of the paratype if differing from the holotype. A summary of proportional measurements and meristic data is presented in Tables 1 and 2. Type specimens are deposited at The Natural History Museum [formerly the British Museum (Natural History), London (BMNH)]; National Museum of Natural History, Washington, D.C. (USNM); and the Western Australian Museum, Perth (WAM).

* Department of Aquatic Vertebrates, Western Australian Museum, Francis Street, Perth, WA 6000.



Figure 1 *Stegastes lubbocki*, holotype, 49.4 mm SL.

Systematics

Stegastes lubbocki sp. nov.

Figure 1

Holotype

WAM P. 30283-001, 49.4 mm SL; Pratt Point, Ascension Island (07°57'S, 14°22'W); rock pools; R. Lubbock; 29 December 1977.

Paratypes

BMNH 1992.4.6:1-8, 8: 26.4-42 mm SL, Pan Am Beach, S.W. Bay, Ascension Island, 12 m, R. Lubbock, 20 December 1977; USNM 320806, 4: 25.2-43.6 mm SL, same data as holotype; WAM P30279-001, 7: 15.2-24.8 mm SL, English Bay, Ascension Island, 15 m, R. Lubbock, 7 January 1978; WAM P30280-001, 26.7 mm SL, Pyramid Point, Ascension Island, 25 m, R. Lubbock, 10 January 1978; WAM P30281-001, 19.3 mm SL, Catherine's Point, Ascension Island, rockpool, R. Lubbock, 30 December 1977; WAM P30282-001, 2: 15.3-16.4 mm SL, English Bay, Ascension Island, 12 m, R. Lubbock, 18 December 1977; WAM P30284-001, 16: 22-50.5 mm SL, English Bay, Ascension Island, 15 m, R. Lubbock, 21 December, 1977.

Diagnosis

A species of the pomacentrid genus *Stegastes* with the following combination of features: dorsal rays XII,14-17; anal rays II, 13-14; pectoral rays 19-21; tubed lateral-line scales 18-21; total gill rakers on first arch 18-21; colour mainly dark brown (to blackish on vertical fins) with abruptly pale (yellow in life) area covering peduncle, caudal fin, and posterior portion of dorsal fin.

Description

Dorsal rays XII,16 (14-17); anal rays II,14 (13-14) (II,15); pectoral rays 19 (19-21),

Table 1 Frequency distribution of fin-rays and lateral-line scales for type specimens of *Stegastes lubbocki*.

Soft dorsal rays				Anal rays			
14	15	16	17	13	14		
1	6	32	1	2	38		
Pectoral rays				Lateral-line scales			
19	20	21		18	19	20	21
21	18	1		4	5	30	1

branched caudal rays 13, gill rakers on first branchial arch 9 + 11 (7-9 + 11-14); lateral-line scales with tubes 20 (18-21); vertical scale rows 28; scales above lateral-line to base of middle dorsal spines 1 1/2; scales below lateral-line to anus 9.

Body ovate, the depth 2.1 (2.1-2.5) in standard length, and compressed, the width 2.2 (2.2-2.6) in depth; head length contained 3.3 (3.1-3.3) in standard length; snout 4.3 (4.0-4.9); eye 2.8 (2.6-2.9); interorbital width 3.6 (3.5-4.2), least depth of caudal peduncle 2.1 (2.1-2.4) length of caudal peduncle 1.9 (1.9-2.3), all in length of head.

Mouth slightly oblique, jaws equal, the maxilla reaching level of anterior part of pupil; teeth of jaws uniserial, relatively long and close-set, with flattened or slightly notched tips; about 32-36 teeth in each jaw; the longest teeth exceeding width of nostril opening; single nasal opening on each side of snout; nostril with a low fleshy rim; margin of preorbital smooth; margin of suborbital finely serrate; preorbital and suborbital bones relatively narrow, the greatest depth about 1/2 eye diameter, the lower margin free; vertical limb of preopercle distinctly serrate; opercle series entire except a pair of flattened spines present on upper edge of gill cover, the largest near angle. Scales of head and body finely ctenoid; predorsal scales extending forward to level of nostrils; anterior part of preorbital, snout tip, lips, chin, and isthmus scaleless; preopercle with 2 major scale rows and an additional row of smaller scales along lower margin; dorsal and anal fins with a basal scaly sheath; caudal fin scaled nearly two-thirds distance to end of lobes; pectoral fins scaled on basal one-fourth; axillary scale of pelvic fins slightly more than half length of pelvic spine.

Tubes of lateral-line ending below middle rays of soft portion of dorsal fin; a series of 8-10 pored scales midlaterally on caudal peduncle to caudal base.

Origin of dorsal fin at level of second tubed scale of lateral line; spines of dorsal fin gradually increasing in length to last spine, membrane between spines moderately incised; last dorsal spine 1.9 (1.6-2.2) in head; first dorsal spine 1.8 (1.7-2.2) in last spine; sixth dorsal spine 1.1 (0.9-1.1) in last dorsal spine; longest soft dorsal ray 1.9 (1.6-2.2) in head; length of base of dorsal fin 1.7 (1.6-1.8) in standard length; first anal spine slightly shorter than first dorsal spine, its length 2.5 (2.3-2.8) in second spine; second anal spine 1.8 (1.6-1.8) in head; longest soft anal ray 1.3 (1.0-1.3) in head; base of anal fin 2.5 (2.2-2.9) in base of dorsal fin; caudal fin emarginate with pointed lobes, its length 1.0 (1.0-1.2) in head length; pectoral fins relatively short, reaching to about level of anus or

Table 2 Morphometric proportions of selected type specimens of *Stegastes lubbocki* n. sp. Expressed in percentage of the standard length.

Character	Holotype		USNM 320806	WAM P30284-001	WAM P30284-001	WAM P30284-001	USNM 320806	USNM 320806	USNM 320806
	WAM P30283-001	USNM 320806							
Standard length (mm)	49.4	43.7	50.0	41.6	42.1	33.6	37.8		
Body depth	46.3	40.5	43.9	41.2	47.4	47.9	39.7		
Body width	20.8	17.3	18.7	18.5	18.1	19.0	16.3		
Head length	30.6	30.5	31.7	32.0	31.3	32.6	32.7		
Snout length	7.2	6.7	8.1	7.7	7.1	6.9	6.5		
Eye diameter	11.1	11.4	10.9	11.4	11.4	12.6	11.9		
Interorbital width	8.4	8.1	8.6	9.1	7.9	7.6	8.4		
Least depth caudal peduncle	4.4	3.7	3.5	3.8	4.0	2.2	2.9		
Length caudal peduncle	14.4	13.9	13.5	13.9	14.4	13.8	13.9		
Snout to origin dorsal fin	16.4	15.5	15.2	15.5	16.0	16.5	16.2		
Snout to origin anal fin	37.3	37.9	36.9	35.3	36.2	40.0	38.6		
Snout to origin pelvic fin	69.8	69.7	69.7	72.6	70.8	68.5	70.7		
Length dorsal-fin base	38.7	38.9	42.8	44.1	45.0	42.3	36.8		
Length anal-fin base	60.4	60.1	59.9	57.7	57.8	58.2	54.2		
Length pectoral fin	23.9	24.1	24.3	25.9	21.2	23.4	24.5		
Length pelvic fin	25.0	27.0	26.7	27.0	28.7	28.6	26.0		
Length pelvic spine	37.5	41.6	40.9	39.3	36.6	38.0	39.0		
Length 1st dorsal spine	11.8	11.2	10.1	10.6	9.4	10.7	10.7		
Length 6th dorsal spine	8.8	8.8	11.3	7.4	9.3	8.2	7.4		
Length 12th dorsal spine	1.51	15.8	16.3	16.6	15.8	17.2	16.1		
Length longest soft dorsal ray	16.1	17.5	15.9	16.1	16.0	15.4	15.1		
Length 1st anal spine	21.5	25.7	23.5	20.8	26.0	23.4	23.0		
Length 2nd anal spine	6.6	6.6	6.5	6.8	5.8	4.9	7.9		
Length longest soft anal ray	16.7	18.4	17.6	18.4	18.8	18.3	17.9		
Length caudal fin	29.7	28.5	29.0	28.8	29.0	29.3	29.4		

just short of this point, the longest ray 1.2 (1.1-1.3) in head length; filamentous tips of pelvic fins reaching to origin of anal fin or slightly beyond, the longest ray 0.9 in head length.

Colour in life

Lubbock (pers. comm., 1978) described the living colours as follows: head and most of body bluish; caudal peduncle and caudal fin bright yellow.

Colour in alcohol

The holotype is mainly dark brown with many dark vertical lines on side following each transverse scale row; caudal peduncle, posterior part of dorsal fin, and caudal fin pale yellowish; most of dorsal fin, anal fin, and pelvic fins blackish; pectoral fin pale with brown blotch at base of uppermost rays. Most of the paratypes are paler; the dark ground colour evidently has faded in preservative. Juveniles under about 25 mm SL have a small (about pupil size or smaller) dark spot at the base of the first few soft dorsal rays.

Remarks

The 13 previously known species of *Stegastes* from the Atlantic Ocean were summarised by Allen (1991). Most of these have very similar morphometric and meristic features. Colour pattern differences are generally useful for separating them except for several species that are relatively drab brown. *Stegastes lubbocki* does not have any obvious close relative and is easily distinguished by its highly contrasted dark body and pale tail. The only Atlantic species that approaches this coloration is *S. partitus* (Poey) which in life is sometimes very dark brown on its anterior two-thirds and abruptly white posteriorly (see illustration on page 180 in Allen, 1991). In addition, *S. lubbocki* is more slender than most species in the genus. Its greatest body depth ranges from 2.1 to 2.5 in the standard length compared with 1.9-2.2 for most other species. The only other slender-bodied species in the Atlantic region is *S. leucostictus* (Müller and Troschel) with a depth ranging from 2.1 to 2.4. However, this species is very different in colour, either plain drab brown or bicoloured (dark dorsally and yellow ventrally). It is also possible that *S. lubbocki* attains a much smaller size than other members of the genus. Our largest specimen measures only 50 mm SL compared with maximum standard lengths of 70-140 mm for the other species. The holotype and largest paratypes have mature gonads, indicating that sexual maturity is attained at a standard length between 40 and 50 mm.

The species is named *lubbocki* in memory of Dr Roger Lubbock, the collector of the type material. An unfortunate traffic accident in Brazil prematurely ended his career in ichthyology. Although his professional life spanned relatively few years, Dr Lubbock made numerous valuable contributions to the knowledge of reef fish taxonomy.

References

- Allen, G.R. (1972). Anemonefishes. T.F.H. Publications, Inc., New Jersey.
Allen, G.R. (1991). Damselfishes of the World. Aquarium Systems, Mentor, Ohio.
Randall, H.A. and Allen, G.R. (1977). A revision of the damselfish genus *Dascyllus* (Pomacentridae) with the description of a new species. *Rec. West. Aust. Mus.* 31(9): 349-385.